

Game Making Made Easy



A Beginner's Guide to Game Development

Make your own games using Game Maker 7.0. This simple drag and drop program will have you creating multi-level games in no time!

By: Anna Sexton

Putting the Pieces Together

Game Coding in Simple Terms:

Sprite:

- a sprite is an image that will be used in your game

Object:

- built from a sprite in which actions are added to make the object “move”

Event

- tells the program what to do when a player make a “move”

Action

- is built to respond to the event

A Bit More Explanation of Coding:

Events:


- ☑ **Create**- the most common event which tells the program something is going to be “created” to begin an action.
- ☑ **Destroy**- destroys an object after an event has been called.
- ☑ **Alarm**- sets a time in which the event will start.
- ☑ **Step**- tells the program with action will begin (step-when the player moves, begin- at the beginning of the event, or end- at the end of an event)
- ☑ **Collision**- tells the program an event will happen when an object collides with another.
- ☑ **Keyboard**- sets an event as it relates to a key on the keyboard.
- ☑ **Mouse**- sets an event as it relates to how the player uses the mouse.
- ☑ **Other**- variety of events including intersect boundary and outside room.
- ☑ **Draw**- draws events into the game (ie, fonts, rectangles, sprites, scores).
- ☑ **Key Press**- an event that occurs based on a key pressed.
- ☑ **Key Release**- an event that occurs based on releasing a key on the keyboard.
- ☑ **Cancel**- cancels an action related to an event.

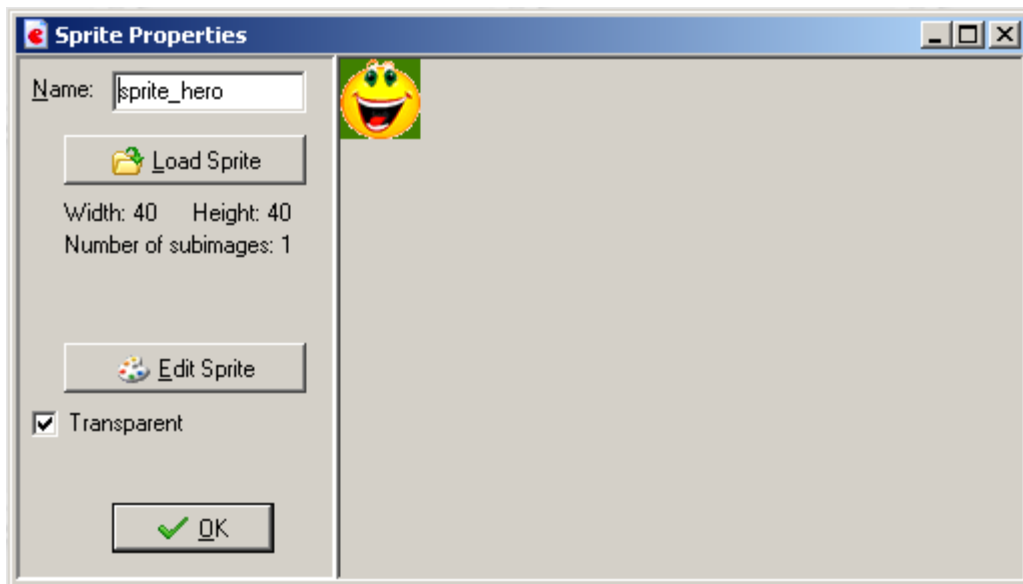
Actions:

- ☑ **Move**- includes a variety of movements that can be applied to an object after an event is created.
- ☑ **Main1**- actions that create or destroy objects, sprites, or rooms during the game.
- ☑ **Main2**- actions for timing, game information and game controls (open, restart, exit, save).
- ☑ **Control**- directly relates to game coding. These actions will call questions during the game, set variables, and other coding events. (Don’t worry! This sounds complicated, but it will make sense as you start creating games.)
- ☑ **Score**- actions that adds or takes points, lives and health of your character.
- ☑ **Draw**- these actions can only be used with a Draw Event. It allows you to create new objects or call new objects in your game.


Let's Begin with Sprites:

Creating the Hero Sprite:

-  1. From the toolbar, choose the **Create Sprite** icon. The Sprite Properties form will appear.
2. Name your Sprite **sprite_hero**. Click the **Load Sprite** button and navigate to the **Image folder** for **Lesson One**. Select the **Hero.gif** sprite.
 - a. Leave the **Transparent** option enabled, so that the background of the object will not be visible in the game.
 - b. Click **OK** to close the Sprite Properties form.




Creating the Evil Sprite:

-  1. From the tool bar, choose the **Create Sprite** icon.
2. Name your Sprite **sprite_evilbig**. Click the **Load Sprite** button and navigate to the Image folder for **Lesson One**. Select the **evil_big.gif** sprite.
 - a. Leave the **Transparent** option enabled, so that the background of the object will not be visible in the game.
 - b. Click **OK** to close the Sprite Properties form.
3. Create a fireball sprite using the **fireball.gif**.
4. Create a small_evil sprite using the **evil.gif**.



Creating Objects:

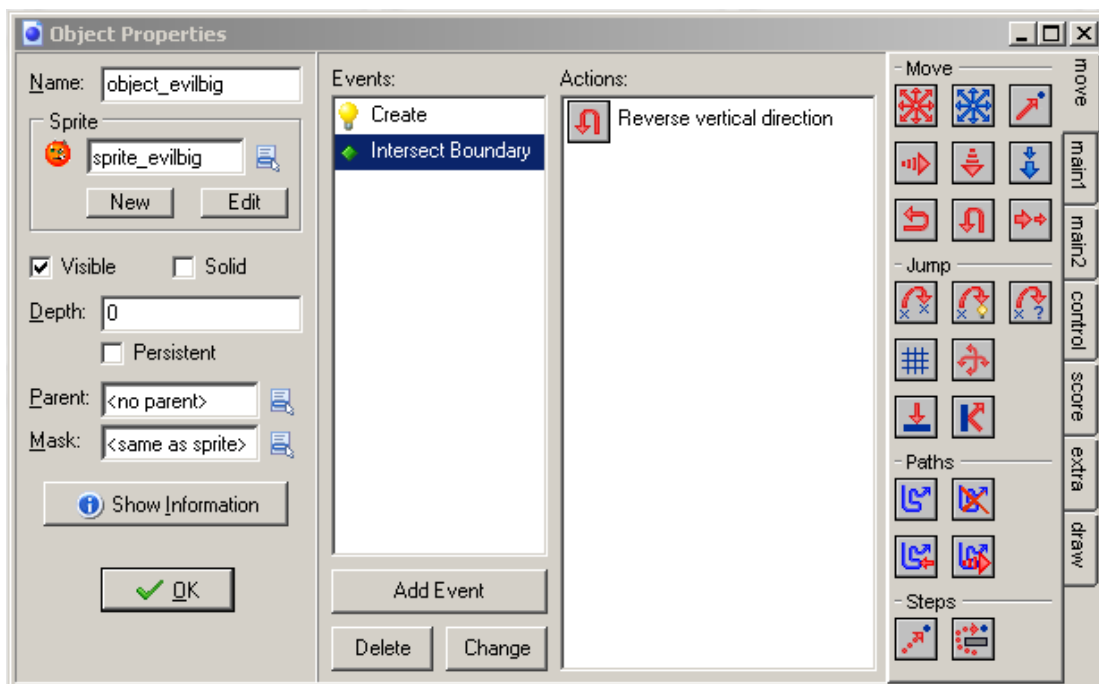
The Evil Object:

-  1. From the **Object** toolbar, choose the **Create an Object** icon. The **Object Properties** form will open.
2. Name the object **object_evilbig**.



NOTE: It is important to name each sprite and object correctly. Never use the same name for a sprite or object. This is why we leave the sprite and object in the name field and add an underscore (_) to show the difference between the items.

- a. Click on the icon at the end of the sprite field and a list will appear with the available sprites. Select the **sprite_evilbig** sprite.
- b. Click the **Add Event** button. Select the **Create** event from the list.
-  c. Now that you have created an event, you must give the event an action. Select the **Move Fixed** action from the move tab. Drag the icon into the **Actions** box. An action form will appear.
- d. Select the up arrow and enter a value of **8** for the **Speed**. This action tells the program to move our object (evilbig) up at a speed of 8 pixels every step it takes. (Pixels are the tiny squares that make up a monitor display.)
- e. Click **Ok**.
- f. Click the **Add Event** button.
- g. Select the **Other** event in the menu and choose the option **Intersect Boundary**.
-  h. Drag a **Reverse Vertical** action to the actions list. Click **Ok** in the Reverse Vertical form. The form was automatically set to **Self**. This means that the action will apply to the **object_evilbig** itself.
- i. Click **OK** to close the **Object Properties** form.



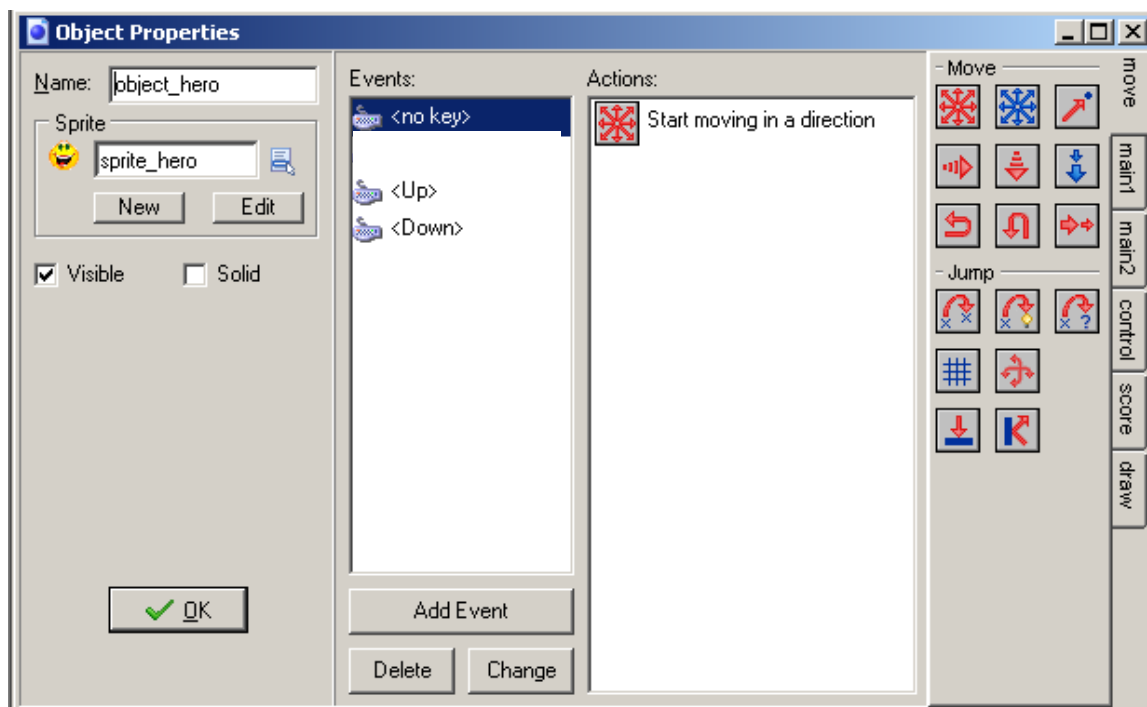
Create a hero object:



1. Select the **Create an Object** icon from the toolbar.
2. Name the object **object_hero**.
3. Select the **sprite_hero** from the sprite drop-down list.



- a. Select the **Add Event** button.
- b. Select the **Keyboard** event and choose the **<Up>** option.
- c. Drag a **Move Fixed** action to the actions list.
- d. Select the up arrow in the move fixed form and set the **Speed** to **16**.
- e. Click **OK**.
- f. Repeat Steps 2-5, except select the **<Down>** option in the **Keyboard** event and the down arrow in the **Move Fixed** action form.
- g. Repeat Steps 2-5, except select the **<no Key>** option in the **Keyboard** event and the center square in the **Move Fixed** action form with a Speed of **0**.



Explanation: The events you created for the hero are simple. You want the player to be able to press certain keys on the keyboard to make the hero move. To do this, you had to create an event that tells the program what to do when the player presses the up or down arrow. In this case, it will move the hero up 16 or down 16 pixels each time the player pressed the up or down arrow, respectively. If the player releases the keys (**<no Key>**), then no action will occur.



****Life Saver: Use the hero1.gmk file for the next activity****

Create a Room

Create a New Room:

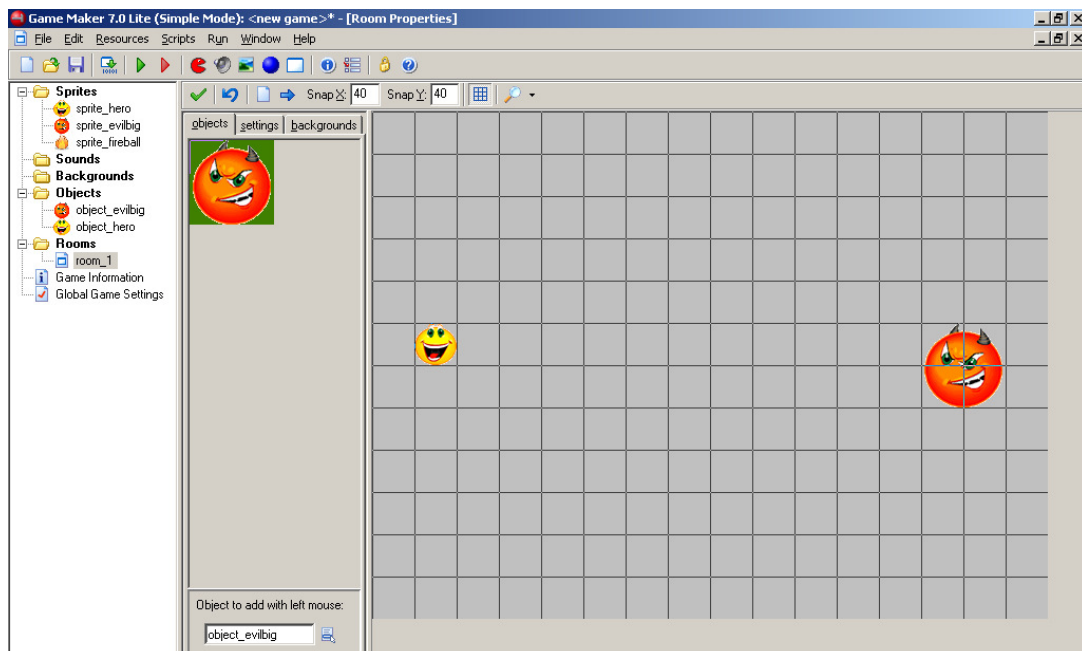


1. Click the **Create a Room** icon on the toolbar.
2. Select the **Settings** tab and name the room **room_one**.

3. Enter the caption for the room “Good vs. Evil”.
4. Change the **SnapX** and **SnapY** options at the top of the room to **40**. ***40 is relative to the pixel size of the graphics used in the game. The small images are 40x40 pixels in size.***

Add objects to your room:

1. Select the **Objects** tab. Click once inside the gray column with the object. A pop-up menu will appear with all the objects you have created.
2. Select the **object_evilbig**. Place the object on the right side of the grid by clicking once on the left mouse button on the grid. ***Right-click on the object to erase the image.***
3. Place an **object_hero** on the left side of the grid. Both objects must be completely inside of the room or they will not work properly. Select the green check mark to close the room (upper left corner of the window).






NOTE: In the **Room Properties** window, notice that there are helpful hints when adding or removing objects in a room. Holding down the **<Alt>**, **<Shift>**, **<Ctrl>** while holding down the left mouse button allows you to “**no(t) snap**”, create “**multiple**” or “**move**” objects on the grid. Holding down the right mouse button and the **<Shift>** or **<Ctrl>** will allow you to “**delete all**” or activate the “**pop-up window**”. You may also choose to disable the **Delete Underlying** option from this window if you are placing objects on top of each other.

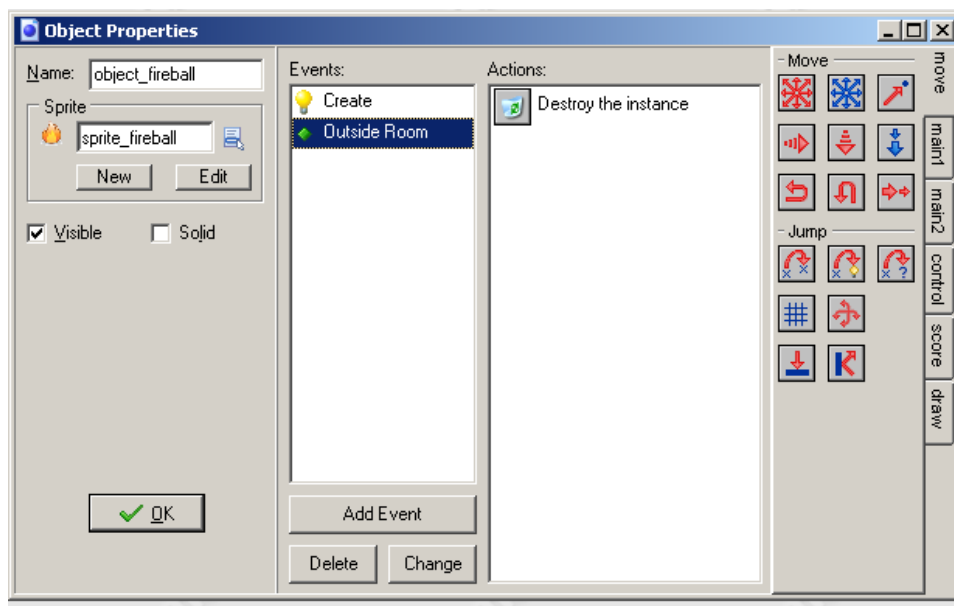


*****Life Saver: Use the hero2.gmk for the next activity.*****

Challenges


Create Challenging Elements to the Game:

-  1. Create an object and name it **object_fireball**.
-  2. Select the fireball sprite.
 - a. Click the **Add Event** button and choose the **Create** event.
 - b. Drag a **Move Fixed** action to the action list. Select the right arrow and set the **Speed** to **32**. Click **OK**.
 - c. Click the **Add Event** button again, select **Other** events and pick **Outside room**.
-  d. Drag the **Destroy Instance** (main1 tab) to the actions list. Click **OK**.
 - e. Click **OK** to close the **Object Properties** form.

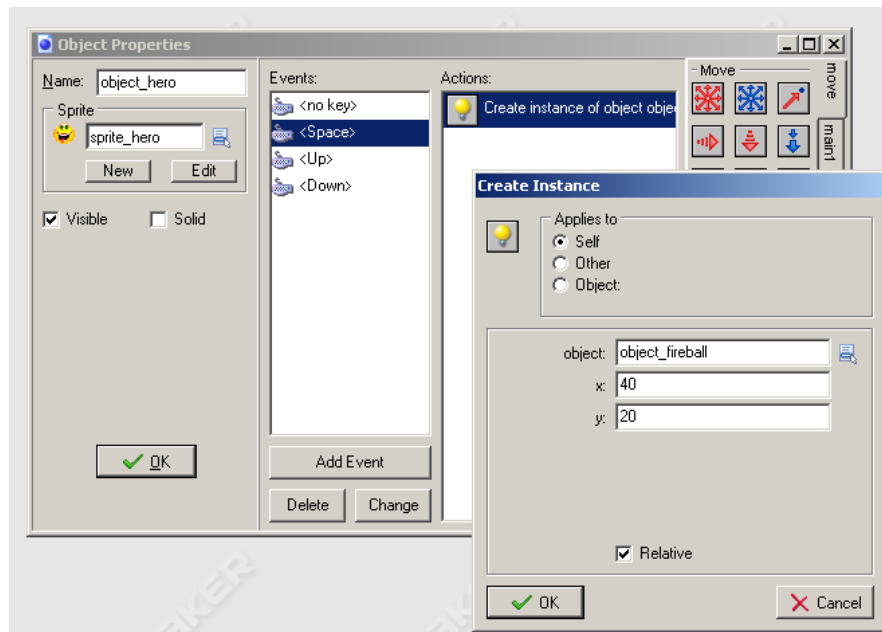


Explanation: Your hero must have a power that can defeat evil. His power is throwing fireballs! You had to create an event to tell the program what direction the fireball will go and how fast. Then you had to tell the program what to do when the fireball left the room, destroy it. Now your hero can fight evil!

Good uses a fireball

1. Double-click the **object_hero** in the Image list.
 - a. Select the **Add Event** button and choose the **Key Press** event. Select the **<Space>** from the menu.
 -  b. Drag a **Create Instance** from the main1 tab into the actions list.
 - c. Select the **object_fireball** from the object menu on the **Create Instance** form. Set the x value to **40** and the y value to **20**. Enable the **Relative** button, so the fireball starts “relative” to the hero. Click **OK**.

d. Click **OK** to close the **Object Properties** form.

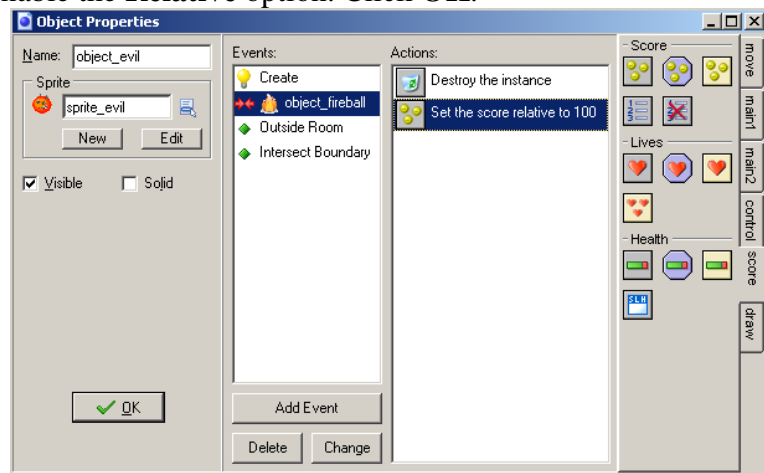


****Life Saver: Use the hero3.gmk file for the next activity.****

More Challenges

Add a Small Evil Object:

1. Create an **object_evil** using the evil sprite.
 - a. Add a **Create** event and drag a **Move Fixed** action to the list.
 - b. Select all three left-pointing arrows and set the **Speed** to **12**. When you select more than one direction it creates random instances of the object. Click **OK**.
 - c. Add an **Other** event and select **Intersect boundary**. Add a **Reverse Vertical** action. Click **OK**.
 - d. Add an **Outside room** event and add a **Destroy Instance**. Click **OK**.
 - e. Click **Add Event** and select the **Collision** event with the **object_fireball**. Click **OK**.
 - f. Add a **Destroy Instance** action. Click **OK**.
 - g. Add a **Set Score** action (score tab) below the **Destroy Instance**. Enter a value of **100** and enable the **Relative** option. Click **OK**.

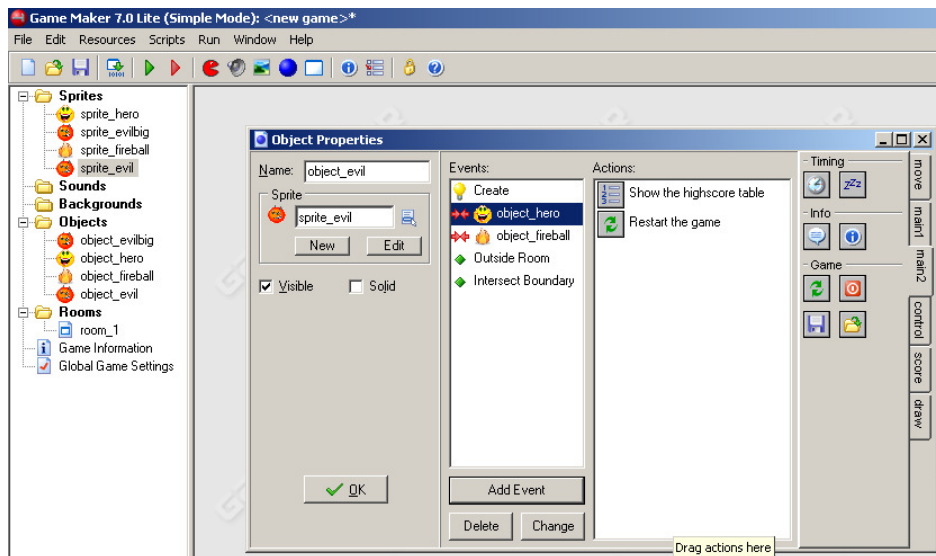




Explanation: Your evil character now has help. He created little evils to throw at our hero. The hero must now throw his fireballs at the little evils to destroy them. When the hero destroys a little evil a score of 100 is added to the game total.



- h. Add a **Collision** event with the hero object.
- i. Add a **Show Highscore** action from the score tab.
- j. Click **OK**.
- k. Add a **Restart Game** action (**main2**).
- l. Click **OK**.



Add a way to summon your small evils:

1. Double-click the **object_evil_big**.
 - a. Click the **Add Event** button, select the **Step** event and choose **Step** from the menu.
 - b. Add a **Test Chance** action (**control** tab). Set the sides to **50**. Click **OK**.
 - c. Add a **Create Instance** action. Set the object to **object_evil** and enable the **Relative** option.
 - d. Click **OK**.



****Life Saver: Use the hero4.gmk file for the next activity****

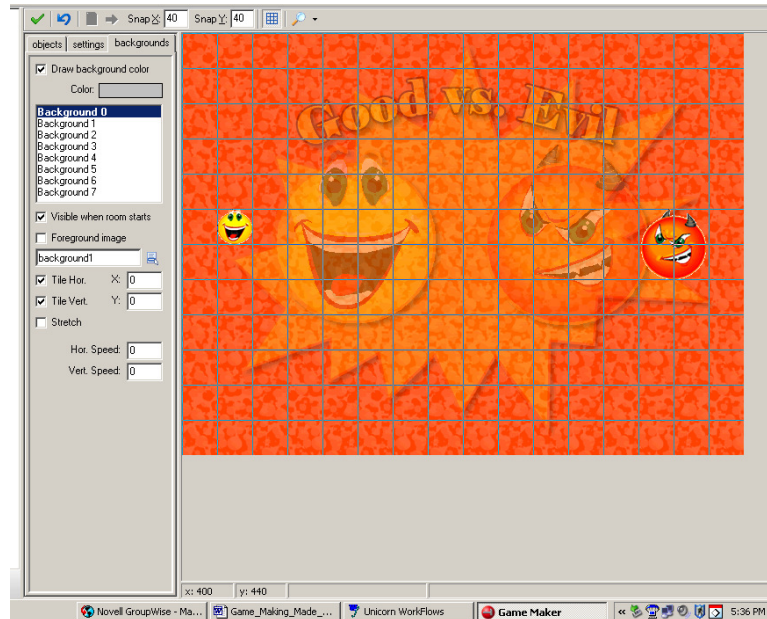
Create a Background

Add a Background to the Room:



1. Select the **Create Background** icon.
2. Name the background- **background1** and click the **Load Background**. Select the **background1.gif** from the images folder.

3. Click **OK**.
4. Double-click to open the **room_one**. Select the background tab, click the menu icon and choose the **background1** from the pop-up menu.
5. Close the room by clicking the green checkmark.



Add Music and Sound

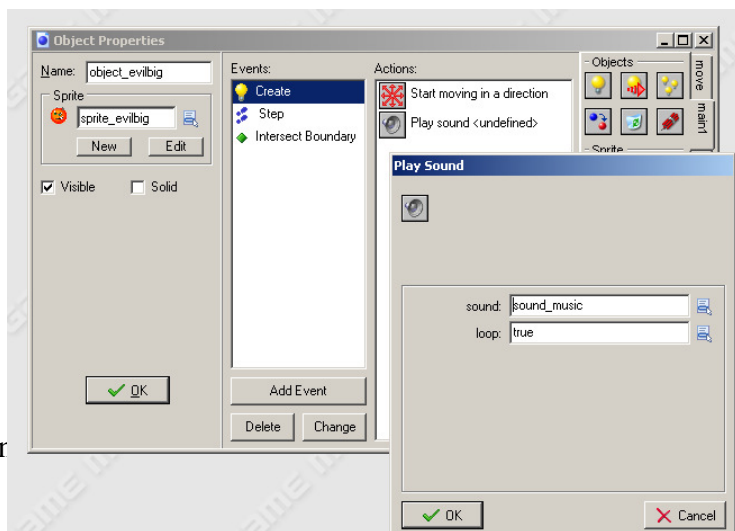
Add Background Music





1. Click the **Create a Sound** icon.
2. Create a new sound called **sound_music** using the **music.midi** from the sounds file.
3. Click **OK**.
4. Open the **evil_big** object.



- a. Select the existing **Create** event to view its actions.
- b. Add a **Play Sound** action (**main1**). Select the **sound_music** and set the **Loop** to true.
- c. Click **OK** and close the **evil_big** object.




Create and add another sound:

-  1. Create a new sound called **sound_hit**.
2. Load the **hit.wav** file. Click **OK**.
3. Open the Evil object and select the existing **Collision** event with the fireball object.
-  4. Add a **Play Sound** action and select **sound_hit** (leave loop set to false).
5. Click **OK**.

Finish and Play

Save the Game and Create an executable:




1. Click the **Save** icon.
2. Name your game **good_vs_evil**.
-  3. Test your game by clicking the **Run the Game** icon.
4. Use the esc button to exit the game.





****Life Saver: Use the good_vs_evil.gmk file for the next activity.****

Add a Welcome Game Screen

Create an Opening Room:

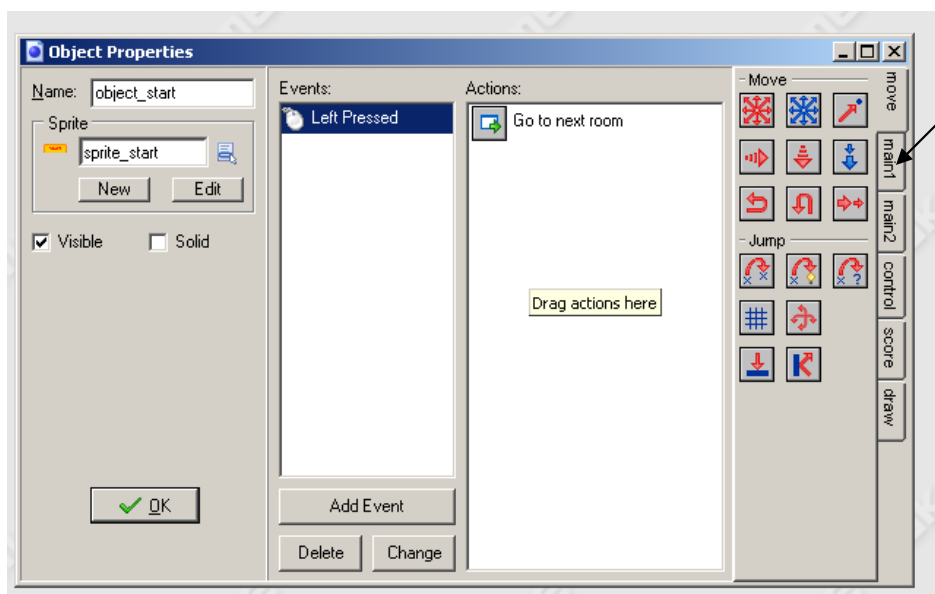
-  1. Create a new sprite called **sprite_title** using the **title.gif** (disable the transparent option). Click **OK**.
-  2. Create a new object called **object_title** using the title sprite. Click **OK**.
-  3. Create a new room called **room_welcome** (settings tab) with a caption “Good vs. Evil”. Snap the X and Y grid to 40. Select the object tab and choose the **object_title**. Left click once on the top left-hand corner of the grid to add the title object. Close the room properties form (green checkmark).
4. Click and drag the new room above **room_one** in the resource window. This will load the welcome room first when the game is executed.

Add a start button:

-  1. Create a new sprite called **sprite_start** and **sprite_help** using the **button_start.gif** and **button_help.gif**.
-  2. Create a new object called **object_start** and **object_help** using the appropriate sprites.
3. Open the Start Object.
 - a. Add a **Mouse** event and select **<Left Pressed>**.



- b. Add a **Next Room** action (main1) and select a transition.
- c. Click **OK**. Click **OK**.



Add a help button:



1. Open the **object_help** and add a **Mouse** event and select **<Left Pressed>**.
 - a. Add a **Show Info** action (**main2** tab).
 - b. Click **OK**.



****Life Saver: Use the hero5.gmk for the next activity.****

Add game information:



1. Select the **Change Game Information** icon.
2. Open the **hero.txt** file (Lesson 1 folder) and copy the information and paste it into the game information screen.
3. Click the green checkmark to close.

Add buttons to the welcome room:

1. Open the **room_welcome**. Select the objects tab and choose the **object_start** in the pop-up window.
2. Disable the **Delete Underlying** option
3. Left-click once on the grid to add a start button.
4. Select the **object_help** and left-click once on the grid to add a help button.
Click the green check mark to close.
5. Run and test your game.
6. The sample game is located in the resource folder: **hero6.gmk**

